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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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McGuireWoods LLP  
1750 Tysons Boulevard  
Suite 1800  
McLean, VA 22102-4215

EXAMINER
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RICHARDS, N DREW

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 11/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/924,761

Applicant(s)

PARK ET AL.

Examiner

N. Drew Richards

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 11-36 is/are pending in the application.
- 4a) Of the above claim(s) 15-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8, 11-14 and 22-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/24/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. In applicant's amendment filed 9/1/04, the first line under the heading "Amendments to the Claims" states that claim 23 is cancelled. The following line states that claims 24 and 25 are amended. However, the listing of the claims includes claim 23 as "currently amended" and claims 24 and 25 as "previously presented." Applicant's arguments then state that claims 22 and 23 have been amended. For the sake of compact prosecution, claims 23-25 are being treated as they are written in the listing of the claims. That is, claim 23 is being treated as amended and not cancelled, and claims 24 and 25 are being treated as previously presented and not amended.

### ***Claim Objections***

2. Claim 22 is objected to because of the following informalities: line 8 recites "form" where it should recite "**from**." Line 8 also reads "guide" where it should read "**guiding**." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 22-27, 30, 32 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 22 line 4 recites "a first light guiding plate adjoining the light..." This limitation is indefinite as it is unclear what the first light guiding plate is adjoining. It seems that this limitation should read "a first light guiding plate adjoining the light **source**." Claims 23-27 contain all the limitations of claim 22 and are thus similarly rejected.

Claims 30, 32 and 33 all recite angles without reciting what or where the angle is measured from. For instance, claim 30 recites the patterns form an angle of about 20 to about 30 degrees but does not provide any basis for where the angle is measured. These claims are indefinite as one can measure an angle from any line or plane and thus one cannot ascertain the metes and bounds of these claims.

5. Insofar as definite, the claims are rejected as follows.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3-7, 11-13 and 22-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Sumida et al. (WO 00/32981). EP 1 134 488 A1 is a published European Patent application that claims priority to WO 00/32981. This European application

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published in the English language and is therefore used as a translation for providing evidence as to what is disclosed in the text of WO 00/32981.

Sumida et al. disclose in figures 1-60(b) a display device. Specifically, Sumida et al. disclose:

- a display panel 105 for displaying an image (figure 1);

- a light source 101 for generating a light beam for the display panel (figure 1, the light beam is not shown but will be emitted from source 101);

- a first light guiding plate 102 adjoining the light source 101 and guiding the light beam generated from the light source 101 in a first direction (figure 1; see also figure 6 which shows the light source 101, first light guiding plate 102, and a sensor for measuring the light emitted from the first light guiding plate 102, thus the light beam has been guided in a first direction); and

- a second light guiding plate 104 adjoining the first light guiding plate 102, formed on the display panel 105 and guiding the light beam from the first light guiding plate 102 in a second direction substantially perpendicular to the first direction (figure 1; see also figure 2(b) which shows the light beam entering the display panel 105 from the second light guiding plate 104, note that the second light guiding plate 104 directs the light beam downward (vertical) while the first light guiding plate 102 directed the light beam sideways (horizontal) in a direction perpendicular to that of the second light guiding plate 104);

wherein the second light guiding plate 104 has a first pattern (grooves as seen in figure 1) partially reflecting the light beam guided from the first light guiding plate 102

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toward the display panel and partially transmitting the light beam reflected by the display panel 105 (figures 4(a) and 4(b) better show the reflecting portion 104e and the transmitting portion 104d).

With regard to claim 3, the light source 101 is disclosed as being a light emission diode (LED).

With regard to claim 4, the first light guiding plate 102 has a second pattern 102f for uniformly inducing the light beam from the light source 101 toward the second light guiding plate 104 (figures 5(a) and 5(b) show the pattern 102f on first light guiding plate 102).

With regard to claim 5, the first light guiding plate 102 has a first side 102b adjoining the second light guiding plate 104 and a second side 102c opposite the first side, the second pattern 102f is formed on the second side 102c of the first light guiding plate 102 (figure 5(a) illustrates the first, second and third surfaces and figure 9 best shows the relation between the first and second light guiding plates 102 and 104 as claimed).

With regard to claim 6, the second pattern 102f comprises a plurality of groove patterns (seen in figures 5(a) and 5(b) for example).

With regard to claim 7, the groove patterns have a triangular shape.

With regard to claim 11, the second light guiding plate 104 has a first surface 104b facing the display panel 105 and a second surface opposite to the first surface 104c opposite to the first surface, the first pattern is formed on the second surface 104c

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(as seen in figure 4(a), the display panel would be below plate 104 as shown in figure 1).

With regard to claim 12, the first pattern has a pattern inclined by an angle of 20 to 30 degrees with respect to an axis formed along an interface between the first light guiding plate and the second light guiding plate. This is disclosed in table 1 of the specification which discloses many varying angles in the range of 20 to 30 degrees to prevent moire fringe effects.

With regard to claim 13, the first pattern has a plurality of prism-shaped patterns 104f arranged in parallel along a selected direction (figure 4(a)), and each of the plurality of prism-shaped patterns 104f comprises:

- a transparent surface 104d disposed adjacent to the light source 101 and transmitting the light beams reflected from the display panel; and

- a reflective surface 104e for reflecting the light beams from the light source toward the display panel.

With regard to claim 22, Sumida et al. disclose:

- a display panel 105 for displaying an image (figure 1);

- a light source 101 for generating a light beam for the display panel (figure 1, the light beam is not shown but will be emitted from source 101);

- a first light guiding plate 102 adjoining the light source 101 to induce the light beam from the light source 101 in a first direction and having a first pattern 102f formed on a surface thereof for uniformly inducing the light beam (figure 1; see also figure 6 which shows the light source 101, first light guiding plate 102, and a sensor for

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measuring the light emitted from the first light guiding plate 102, thus the light beam has been guided in a first direction); and

a second light guiding plate 104 adjoining the first light guiding plate 102 to induce the light beam from the first light guiding plate 102 in a second direction and having a second pattern 104f for reflecting the light beam toward the display panel 105, wherein the first direction is substantially different from the second direction (figure 1; see also figure 2(b) which shows the light beam entering the display panel 105 from the second light guiding plate 104, note that the second light guiding plate 104 directs the light beam downward (vertical) while the first light guiding plate 102 directed the light beam sideways (horizontal) in a direction perpendicular to that of the second light guiding plate 104);

With regard to claim 23, the first light guiding plate 102 has a first surface 102a adjoining the light source 101, a second surface 102b adjoining the second light guiding plate 104, and a third surface 102c opposite to the second surface, the first pattern 102f being formed on the third surface 102c (figure 5(a) illustrates the first, second and third surfaces and figure 9 best shows the relation between the first and second light guiding plates 102 and 104 as claimed).

With regard to claim 24, the first pattern 102f comprises a plurality of grooves (seen in figures 5(a) and 5(b) for example).

With regard to claim 25, the second light guiding plate has a first surface 104b adjoining the second surface of the first light guiding plate 102b, a second surface 104a adjoining the display device 105 and a third surface 104c opposite to the first surface,



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the second pattern 104f formed on the third surface 104c (see figures 1 and 4(a) for example).

With regard to claim 26, the second pattern comprises a plurality of prism-shaped patterns inclined by an angle of 20 to 30 degrees with respect to the second surfaced of the second light guiding plate. This is disclosed in table 1 of the specification which discloses many varying angles in the range of 20 to 30 degrees to prevent moire fringe effects.

With regard to claim 27, each prism-shaped pattern comprises a reflective surface 104e for reflecting the light beam from the first light guiding plate toward the display panel and a transmissive surface 104d for transmitting the light beam reflected by the display panel, and the transmissive surface is closer to the first light guiding plate than the reflective surface.

With regard to claim 28, the first light guiding plate 102 further includes a third side 102a adjoining the first and second side 102b, 102c, and the light source 101 is disposed at the third side 102a.

With regard to claim 29, Sumida et al. disclose:

a display panel 105 including a plurality of pixel patterns arranged in a matrix shape (figure 1; see figures 3(a) and 3(b) for the plurality of pixels patterns in a matrix);

a light source 101 generating a light beam for the display panel (figure 1, light beam not shown); and

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a light guiding plate 104 guiding the light beam generated from the light source 101 toward the display panel 105, the light guiding plate having patterns 104f being slant with respect to the pixel patterns (figure 1).

With regard to claim 30, the patterns 104f of the light guiding plate 104 forms an angle of about 20 degrees to about 30 degrees. Since the recited angle is not claimed as being measured from any particular structure or line, the patterns are considered to form an angle of about 20 to about 30 degrees from an arbitrary line 20 to 30 degrees from the pattern.

With regard to claim 31, each pattern 104f of the light guiding plate 104 has a transparent face 104d and a reflective face 104e and a cross section of the patterns forms a saw-tooth shape.

With regard to claim 32, the transparent face forms an angle of about 3.0 to about 3.5 degrees. Since the recited angle is not claimed as being measured from any particular structure or line, the transparent face is considered to form an angle of about 3.0 to about 3.5 degrees from an arbitrary line 3.0 to 3.5 degrees from the transparent face.

With regard to claim 33, the reflective face forms an angle of about 33 to about 34 degrees. Since the recited angle is not claimed as being measured from any particular structure or line, the reflective face is considered to form an angle of about 33 to about 34 degrees from an arbitrary line 33 to 34 degrees from the reflective face.

With regard to claim 34, Sumida et al. further disclose a sub light guiding plate 102 having a first side 102b adjoining the light guiding plate and a second side 102c

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opposite to the first side 102b, a third side 102a adjoining the first side and second side, wherein the light source 101 is disposed at the third side (see figure 5(a) in conjunction with figure 1).

With regard to claim 35, the sub light guiding plate 102 comprises groove patterns 102f formed at the second side 102c to adjust a light beam path toward the light guiding plate 104.

With regard to claim 36, the groove patterns have a triangular sectional shape.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sumida et al. as applied to claims 1, 3-7, 11-13 and 22-36 above.

With regard to claim 8, Sumida et al. disclose the groove patterns having a vertex, but do not disclose an acute angle of the vertex being approximately 90 degrees.

With regard to claim 14, Sumida et al. do not explicitly disclose a first acute angle between the transparent surface and a flat surface of the second light guiding plate is in a range of between 3.0 degrees to 3.5 degrees, and a second acute angle between the reflective surface and the flat surface is in a range between 33 degrees to 34 degrees.

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Though not explicitly disclosed, it is nonetheless considered obvious to one of ordinary skill in the art at the time of the invention to form the angles to the degrees claimed. Sumida et al. teach forming these grooves to reflect the light beam as uniformly as possible so as to reduce moire fringe effects and to allow for consistent brightness across the entire display, as well as to transmit as much as possible of the light being reflected by the display. This produces a bright, clear picture. Choosing the specific angles claimed is considered an obvious optimization to obtain the desired result of a bright, clear picture on the display.

These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. In re Woodruff, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also In re Huang, 40 USPQ2d 1685, 1688 (Fed. Cir. 1996) (claimed ranges of a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also In re Boesch, 205 USPQ 215 (CCPA) (discovery of optimum value of result effective variable in known process is ordinarily within skill of art) and In re Aller, 105 USPQ 233 (CCPA 1955) (selection of optimum ranges within prior art general conditions is obvious).

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 22-27 have been considered but are moot in view of the new ground(s) of rejection.

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***Conclusion***

11. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 8/24/04 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

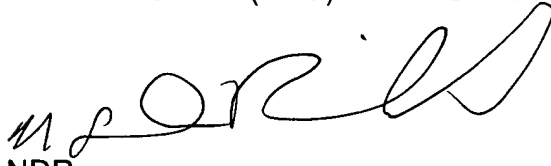
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Drew Richards whose telephone number is (571) 272-1736. The examiner can normally be reached on Monday-Friday 9:00-5:00.

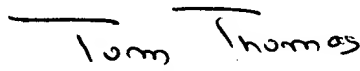
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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